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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/578,027

11/06/2008

Jacob M. J. Den Toonder

EPC-018

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EXAMINER

MORILLO, JANELLE COMBS

ART UNIT

PAPER NUMBER

1733

NOTIFICATION DATE

DELIVERY MODE

01/04/2012

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

docketing@slater-matsil.com

<b>Office Action Summary</b>	<b>Application No.</b> 10/578,027	<b>Applicant(s)</b> DEN TOONDER ET AL.	
	<b>Examiner</b> JANELLE MORILLO	<b>Art Unit</b> 1733	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 07 October 2011.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on \_\_\_\_; the restriction requirement and election have been incorporated into this action.
- 4) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 5) ☒ Claim(s) 1-20 is/are pending in the application.
- 5a) Of the above claim(s) 8,9 and 12-17 is/are withdrawn from consideration.
- 6) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 7) ☒ Claim(s) 1-7,10,11 and 18-20 is/are rejected.
- 8) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 9) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 10) ☐ The specification is objected to by the Examiner.
- 11) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 12) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                       | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. ____.                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>122311</u> .  | 6) <input type="checkbox"/> Other: ____.                          |

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## DETAILED ACTION

### *Drawings*

1. The objection to the drawings has been overcome, in view of the amendment to the specification, mentioning the free-standing film/electrode #30 (already present/labeled in the drawings, see Fig. 10, etc).

### *Claim Rejections - 35 USC § 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-7, 10, 11, 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hagihara et al (US 6,791,188) in view of Grupp (US 6,261,943).

Hagihara teaches an aluminum alloy comprising (in at%): 0.5-15at% Cu and Mg (abstract), which overlaps the composition in amended independent claims 1, 11, 18, as well as claims 2-7 and 10. Hagihara teaches a thin film several microns or less (column 3 line 45) with low hillocks and specific resistance (column 3 lines 58-59) is sputtered from a sputtering target of said alloy, onto a substrate (abstract), and is suitable for electrode or wiring materials in semiconductor elements (column 3 lines 55-56). Hagihara does not teach removing the substrate/forming a free standing thin film of said Al-Mg-Cu overlapping alloy.

However, Grupp teaches forming aluminum free-standing thin film by using a sacrificial silicon nitride substrate, and wet etching said substrate (column 4 line 56- column 5 line 14),

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which reveals unsupported portions/free-standing structure of aluminum film. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have sputtered the Al-Mg-Cu thin film of Hagihara onto a sacrificial silicon nitride substrate of Grupp, and further wet etched said substrate to form a free standing structure of Al-Mg-Cu thin film, because Grupp teaches it is known to remove substrates when it is desired to form free-standing thin films.

Concerning new claims 18-20, neither Hagihara nor Grupp teach the particular electrode configuration as claimed, however, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have formed/applied the Al-Cu-Mg thin film of Hagihara combined with Grupp in the claimed particular MEMS structure, because Hagihara and Grupp teaches an overlapping composition, and Grupp teaches said free standing thin films are useful in variety of MEMS applications (column 3 lines 8-16).

### ***Response to Amendment/Arguments***

4. In the response filed on October 7, 2011 applicant amended claims 1, 7, 11, 18. The examiner agrees that no new matter has been added.

5. Applicant's argument that the present invention is allowable over the prior art of record because the combination of Zhang and "Aluminum and Aluminum Alloys" as well as the combination of Grupp and "Aluminum and Aluminum Alloys" do not teach a minimum of at least 0.1at% Mg has been found persuasive.

6. Applicant's argument that the present invention is allowable over the prior art of record because Hagihara and Grupp do not teach the claimed free standing thin film has not been found

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persuasive. Instant claims are drawn to a free standing thin film, wherein the thin film comprises a given composition (aluminum alloyed with at least 0.1at% Mg). Though applicant argues Grupp is drawn to a free standing thin film with a tri-layer structure, said aluminum (layer) thin film of Grupp still qualifies as “free standing”. Additionally, a layered structure is not excluded by the instant claims.

7. Further, the motivation to combine Hagihara and Grupp (as stated above)- it would have been obvious to one of ordinary skill in the art at the time the invention was made to have sputtered the Al-Mg-Cu thin film of Hagihara onto a sacrificial silicon nitride substrate of Grupp, and further wet etched said substrate to form a free standing structure of Al-Mg-Cu thin film, because Grupp teaches it is known to remove substrates when it is desired to form free-standing thin films.

### *Conclusion*

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

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however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JANELLE MORILLO whose telephone number is (571)272-1240. The examiner can normally be reached on 7:30 am- 6:00 pm Mon-Wed.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jessee Roe/  
Primary Examiner, Art Unit 1733

/J. M./  
Examiner, Art Unit 1733  
December 27, 2011